

1. A network system, comprising:  
a first cable configured to transmit differential data;  
a converter in electrical communication with the first cable and configured to convert  
differential data to coaxial data and coaxial data to differential data; and  
5 a second cable configured to transmit coaxial data and in electrical communication with  
the converter.

2. The network system of claim 1, wherein the converter comprises a plurality of  
transformers configured to convert differential data to coaxial data and coaxial data to differential  
10 data.

3. The network system of claim 1, wherein the first cable comprises Cat-5 cable.

4. The network system of claim 1, wherein the second cable comprises first and second  
15 coaxial cables, the first and second coaxial cables each comprising,  
a conductor configured to transmit coaxial data, and  
a shield at least partially surrounding the conductor.

5. The network system of claim 4, wherein the converter is further configured to transmit  
20 power between the first cable and the second cable and wherein the shields of the first coaxial  
cable and the second coaxial cable are configured to transmit power received from the converter.

6. The network system of claim 5, wherein the converter further comprises a power  
connector to direct the transmitted power to a destination external to the converter.

7. The network system of claim 5, wherein the converter comprises,  
a first transformer in electrical communication with the first cable and configured to  
convert differential data to coaxial data;  
5 a first blocking capacitor in electrical communication with the first transformer and  
configured to pass data and substantially restrict passage of power;  
a second transformer in electrical communication with the second cable and configured to  
convert coaxial data to differential data; and  
a second blocking capacitor in electrical communication with the second transformer and  
10 configured to pass data and substantially restrict passage of power,  
wherein the conductor of the first coaxial cable is in electrical communication with the  
first blocking capacitor to transmit data, the shield of the first coaxial cable is in electrical  
communication with the first transformer to transmit data, the conductor of the second coaxial  
cable is in electrical communication with the second blocking capacitor to transmit data, and the  
15 shield of the second coaxial cable is in electrical communication with the second transformer to  
transmit data.

8. The network system of claim 7, further comprising a third cable in electrical  
communication with the second transformer and configured to receive and transmit differential  
data.

9. The network system of claim 4, wherein the second cable further comprises an outer  
shield at least partially surrounding the first and second coaxial cables.

10. The network system of claim 1, wherein the converter further comprises auxiliary power lines and the second cable further comprises auxiliary power lines in electrical communication with the auxiliary power lines of the converter.

5 11. The network system of claim 1, wherein the converter further comprises an amplifier in electrical communication with the second cable and configured to amplify coaxial data.

12. A network system, comprising:  
a coaxial cable configured to transmit coaxial data;  
10 a first converter in electrical communication with the coaxial cable and configured to convert coaxial data to differential data; and  
a switch in electrical communication with the first converter and having a plurality of ports, wherein the switch is configured to receive and switch differential data.

15 13. The network system of claim 12, wherein the first converter is in electrical communication with the switch through a Cat-5 cable.

14. The network system of claim 12, further comprising a plurality of Cat-5 cables in electrical communication with respective ports of the switch.

20 15. The network system of claim 12, further comprising:  
a second converter in electrical communication with the switch and configured to convert differential data to coaxial data; and  
a second coaxial cable in electrical communication with the second converter.

16. The network system of claim 12, wherein the coaxial cable and the first converter are further configured to transmit power.

17. The network system of claim 16, further comprising:

5 a power manager in electrical communication with the first converter;

a second converter in electrical communication with the power manager and the switch and configured to convert differential data to coaxial data; and

a third converter in electrical communication with the power manager and the switch and configured to convert differential data to coaxial data, wherein the power manager includes a

10 power switch to direct power to the second and third converters.

18. The network system of claim 16, wherein the coaxial cable comprises first and second coaxial cables each having,

a conductor configured to transmit coaxial data, and

15 a shield at least partially surrounding the conductor and configured to transmit power.

19. The network system of claim 18, wherein the first converter further comprises,

a first transformer in electrical communication with the conductor and shield of the first coaxial cable and configured to convert differential data to coaxial data, and

20 a second transformer in electrical communication with the conductor and shield of the second coaxial cable and configured to convert coaxial data to differential data.

20. The network system of claim 19, wherein the first converter further comprises an amplifier in electrical communication with the first transformer and configured to amplify coaxial data.

5 21. The network system of claim 19, wherein the first converter further comprises, a first blocking capacitor in electrical communication with the first transformer and the conductor of the first coaxial cable and configured to substantially restrict passage of power, and a second blocking capacitor in electrical communication with the second transformer and the conductor of the second coaxial cable and configured to substantially restrict passage of  
10 power.

22. A converter for use in a network system to convert differential data to coaxial data, comprising:

a first port configured to receive differential data from a cable;

15 a first transformer in electrical communication with the first port and configured to convert differential data to coaxial data;

a second port in electrical communication with the transformer and configured to transmit coaxial data to a cable;

a third port configured to receive coaxial data from a cable;

20 a second transformer in electrical communication with the third port and configured to convert coaxial data to differential data; and

a fourth port in electrical communication with the second transformer and configured to transmit differential data to a cable.

23. The converter of claim 22, wherein the first and second transformers are further configured to transmit power and further comprising:

a first blocking capacitor in electrical communication with the first transformer and the second port and configured to substantially restrict passage of power; and

5 a second blocking capacitor in electrical communication with the second transformer and the fourth port and configured to substantially restrict passage of power.

24. The converter of claim 22, further comprising a power connector in electrical communication with the first and second transformers and configured to direct power to a  
10 destination external to the converter.

25. The converter of claim 22, further comprising auxiliary power lines configured to transmit power and configured to engage power lines exterior to the converter.

15 26. The converter of claim 22, further comprising an amplifier in electrical communication with the first transformer and the second port and configured to amplify coaxial data.

27. A method for transmitting data and power across a neighborhood area network  
20 (NAN), comprising:

transmitting coaxial data and power in a first cable;

receiving the coaxial data and the power from the first cable;

converting the coaxial data to differential data; and

transmitting the differential data and the power to a second cable.

28. The method of claim 27, wherein transmitting the coaxial data and power further comprises:

transmitting positive polarity of the power in a shield of a first coaxial cable within the first cable; and

5 transmitting negative polarity of the power in a shield of a second coaxial cable within the first cable.

29. The method of claim 27, wherein transmitting the coaxial data and the power further comprises:

10 transmitting the coaxial data in a conductor of a first coaxial cable within the first cable; and

transmitting the coaxial data in a conductor of a second coaxial cable within the first cable.

15 30. The method of claim 27, further comprising amplifying the coaxial data.

31. The method of claim 27, further comprising routing the differential data and the power to a destination.

20 32. The method of claim 27, further comprising directing the power to a switch.

33. The method of claim 27, further comprising directing the power to one or more segments in the NAN.

34. The method of claim 27, further comprising filtering the power.

35. The method of claim 28, further comprising transmitting auxiliary power in the first cable.

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36. A distribution device for use in transmitting data and power across a neighborhood area network, comprising:

a switch in electrical communication with an uplink connector;

10 a first cable in electrical communication with the switch and configured to receive and transmit differential data and power; and

a converter in electrical communication with the first cable and configured to transmit power, convert differential data to coaxial data, and convert coaxial data to differential data, wherein the converter is configured to communicate with a coaxial cable.

15 37. The distribution device of claim 36, wherein the first cable comprises Cat-5 cable.

38. The distribution device of claim 36, further comprising a power control in electrical communication with the switch and the converter and configured to convey DC power.

20 39. The distribution device of claim 38, further comprising a power supply in electrical communication with the power control and configured to provide DC power.

40. The distribution device of claim 39, further comprising a storage battery in electrical communication with the power supply.



41. The distribution device of claim 39, further comprising a power transformer in electrical communication with an AC power source and the power supply.

42. The distribution device of claim 36, wherein the converter comprises a transformer  
5 configured to convert differential data to coaxial data and pass power.

43. The distribution device of claim 42, wherein the converter comprises a blocking capacitor in electrical communication with the transformer to substantially restrict passage of power.

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44. The distribution device of claim 42, wherein the converter comprises an amplifier in electrical communication with the transformer and configured to amplify coaxial data.

45. The network system of claim 12, wherein the first converter is integrated with one or more ports of the switch.

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